

What is claimed is:

1. A monolithic glass member for supporting loads, comprising:
5 a plurality of glass sheets, one of the glass sheets having a cut out at an edge thereof;
a connector disposed in the cut out of the one glass sheet, a portion of the connector being exposed at the edge of the glass member, the connector providing a means for connecting and supporting the glass member relative to other structures; and
10 a bonding layer disposed between adjacent pairs of glass sheets, the bonding layer being configured to bond the glass sheets and the connector together to form a laminated structure and to provide rigidity and stiffness to the laminated structure.
2. The glass member as recited in claim 1 wherein the glass sheets are annealed glass
15 sheets.
3. The glass member as recited in claim 1 wherein the bonding layer is a polymer.
4. The glass member as recited in claim 1 wherein the bonding layer is Sentry Plus
20 Ionplast Interlayer.
5. The glass member as recited in claim 1 wherein the glass sheets have a low concentration of iron.
- 25 6. The glass member as recited in claim 1 wherein the connector is formed from titanium.
7. The glass member as recited in claim 1 wherein the one glass sheet includes a second cut out at a second edge that is opposite the first edge, and further including a
30 second connector disposed in the second cut out of the one glass sheet, a portion of the insert being exposed at the second edge of the glass member, the connector providing a means for connecting and supporting the glass member relative to other structures.

8. The glass member as recited in claim 1 wherein the glass member is only supported at the first and second edges thereof by the first and second connectors
9. The glass member as recited in claim 1 wherein glass member spans from the first edge to the second edge a length of between about 7 and about 8 feet
10. The glass member as recited in claim 1 wherein the glass member supports loads from foot traffic of one or more persons.
11. The glass member as recited in claim 1 wherein the glass member is a tread of a stair, a landing of a staircase, a platform of a bridge or a platform of a floor.
12. The glass member as recited in claim 1 wherein the glass member includes four glass sheets and three bonding layers.
13. The glass member as recited in claim 1 wherein the one glass sheet includes two or more cut outs at an edge thereof and further including connectors disposed in the cut outs of the one glass sheet, a portion of the connectors being exposed at the edge of the glass member, the connectors providing a means for connecting and supporting the glass member relative to other structures.
14. The glass member as recited in claim 1 wherein the one glass sheet includes two or more cut outs at a second edge that is opposite the first edge, and further including connectors disposed in the cut outs of the one glass sheet, a portion of the connectors being exposed at the edge of the glass member, the connectors providing a means for connecting and supporting the glass member relative to other structures.
15. A glass tread or riser of a stair, comprising:
a plurality of glass sheets that are bonded together via one or more Sentry Glas Plus Ionplast Interlayers to form a laminate structure, the laminate structure having a top surface, a bottom surface and an edge formed therebetween, the laminate structure being configured to be secured only at the edge and to support human loads that are applied normal to the top surface.

16. A glass laminate structure, comprising:
a titanium insert disposed within the bonded glass layers of the glass laminate structure, the titanium insert being positioned at the edge of the glass laminate structure so as to allow the glass laminate structure to be connected to other structures.
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17. A staircase, comprising;
a pair of spaced apart vertical walls;
a plurality of horizontal glass treads positioned between the spaced apart vertical walls in a stepped apart relationship relative to one another, each of the glass treads
10 having opposing ends;
a plurality of connection arrangements for fixing the opposing ends of the horizontal glass treads to the spaced apart vertical walls, each of the connection arrangements including a first connection member that is adapted to be fixed to the vertical wall and a second connection member adapted to be fixed to the end of the glass
15 horizontal tread, the first connection member having a first interlocking portion, the second connection member having a second interlocking portion, the first and second interlocking portions being configured to engage one another so as to place the horizontal glass tread in a secure relationship relative to the vertical walls.
- 20 18. The staircase as recited in claim 17 wherein the vertical walls are formed from glass.
19. The staircase as recited in claim 18 wherein the vertical walls and horizontal glass treads are laminated glass structures.
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20. The staircase as recited in claim 19 wherein the vertical walls are formed from a first laminated glass structure and wherein the horizontal glass tread is formed from a second laminated glass structure that is different than the first laminated glass structure.
- 30 21. The staircase as recited in claim 17 wherein the horizontal glass tread is a laminated glass structure, wherein the second connection member includes an insert that is disposed within the laminated glass structure at each of its opposing ends, and wherein the second interlocking portion is coupled to the insert.

22. The staircase as recited in claim 17 wherein the interlocking portions may be disengaged from one another so as to place the horizontal glass tread in a removable relationship relative to the vertical walls.

5 23. An apparatus for affixing an end of a glass stair to a support structure, the apparatus comprising:

a first connection member adapted to be fixed to the support structure, the first connection member having a first interlocking portion;

10 a second connection member adapted to be fixed to the end of the glass stair, the second connection member having a second interlocking portion, the first and second interlocking portions being configured to engage one another so as to place the glass stair in a secured relationship relative to the support structure.

15 24. The apparatus of claim 23 wherein the glass stair is a laminate structure, and wherein the second connection member has an insert that is interposed within the laminate structure at an edge of the glass stair.

25 25. The apparatus of claim 24 wherein the second interlocking portion is capable of being coupled to the insert.

20 26. The apparatus of claim 24 wherein the insert is formed from titanium.

25 27. The apparatus of claim 23 wherein the first and second interlocking portions are formed from stainless steel.

30 28. The apparatus of claim 23 wherein the second interlocking portion is capable of being coupled to the first interlocking portion.